UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/718,258	11/19/2003	Robert Tornoe	EIMC-0019	8165

7590 03/21/2007

David B. Ritchie
Thelen Reid & Priest LLP
P.O. Box 640640
San Jose, CA 95164-0640

EXAMINER	
CANNING, ANTHONY J	
ART UNIT	PAPER NUMBER
2879	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/21/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/718,258	TORNOE ET AL.	
	Examiner	Art Unit	
	Anthony J. Canning	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 December 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9 and 11-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9 and 11-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☒ Other: *Detailed Action*.

DETAILED ACTION

Acknowledgement of Amendment

1. The amendment to the instant application was entered on 21 December 2006.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claim 1, 3, 5 and 7-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Byram et al. (U.S. 5,493,178; of record).

4. As to claim 1, Byram et al. discloses an electron tube (see Fig. 1; column 2, lines 66-67); including: an electrically insulating wall portion (see Fig. 1, item 12; column 3, lines 64-66); a multistage collector (see Fig. 1, item 10; column 3, lines 61-63) including: a first electrode (see Fig. 1, item 16; column 4, lines 12-13) adapted to collect electrons (column 1, lines 26-29 and column 1, lines 47-50; collector electrodes are by definition electrodes in an electron tube that collects electrons that have finished carrying current) of a first energy level impacting the first electrode (column 1, lines 47-50) the first electrode formed on an inside portion of the insulating wall portion (see Fig. 1, item 12; column 4, lines 5-8) and including a metallization layer formed on the inside portion of the insulating wall portion (column 5, lines 1-4); a second electrode (see

Fig. 1, item 28; column 4, line 34-35) adapted to collect electrons (column 1, lines 26-29 and column 1, lines 47-50; collector electrodes are by definition electrodes in an electron tube that collects electrons that have finished carrying current) of a second energy level impacting the second electrode (column 1, lines 47-50); and an insulating portion (see Fig. 1, item 20; the space shown at item 20 is a space between two electrodes, the space between electrodes forms an insulating portion between the two electrodes) for electrically isolating the first and second electrodes from one another (the space between electrodes acts to electrically isolate the first from the second electrode); and an electrical path (see Fig. 1, item 22; column 4, lines 20-23) coupling the first electrode to a terminal on an exterior of the tube (paragraph 4, lines 20-23).

5. As to claim 3, Byram et al. disclose an electron tube in accordance with claim 1. Byram et al. further disclose that the electrically insulating wall portion comprises a ceramic material (column 3, lines 64-66).

6. As to claim 5, Byram et al. discloses an electron tube in accordance with claim 3. Byram et al. further discloses that the tube further comprises a fluid cooling apparatus (see Figs. 1 and 2, item 45; column 5, lines 17-28) in thermal contact with an exterior of the tube (column 5, lines 25-28).

7. As to claim 7, Byram et al. discloses an electron tube in accordance with claim 5. Byram et al. further discloses that ceramic comprises a material selected from the group consisting of: aluminum oxide, beryllium oxide and aluminum nitride (column 3, lines 66-67 and column 4, line 1).

8. As to claim 8, Byram et al. discloses an electron tube in accordance with claim 3. Byram et al. further discloses that the tube further comprises a fluid cooling apparatus (see Figs. 1 and 2, item 45; column 5, lines 17-28) in thermal contact with an exterior of the tube (column 5, lines 25-28).

9. As to claim 9, Byram et al. discloses an electron tube (see Fig. 1; column 2, lines 66-67); including: a linear beam electron tube (see Fig. 1; column 3, lines 61-64); a vacuum envelope (see Fig. 1, item 10; column 3, lines 61-64; klystrons by definition contain a vacuum envelope) the vacuum envelope includes an electrically insulating wall portion (see Fig. 1, item 12; column 3, lines 64-66); a multistage collector (see Fig. 1, item 10; column 3, lines 61-63) including: a first electrode (see Fig. 1, item 16; column 4, lines 12-13), the first electrode comprising a layer of metallization configured to collect electrons (column 1, lines 26-29 and column 1, lines 47-50; collector electrodes are by definition electrodes in an electron tube that collects electrons that have finished carrying current; column 5, lines 1-4, since the metallization layer adheres the electrode to the insulating wall portion the metallization layer is "configured" to collect electrons since the electrode is attached to the metallization layer) of a first energy level impacting the first electrode (column 1, lines 47-50) the first electrode formed on an inside portion of the insulating wall portion (see Fig. 1, item 12; column 4, lines 5-8); a second electrode (see Fig. 1, item 28; column 4, line 34-35) adapted to collect electrons (column 1, lines 26-29 and column 1, lines 47-50; collector electrodes are by definition electrodes in an electron tube that collects electrons that have finished carrying current) of a second energy level impacting the second electrode (column 1, lines 47-50); and an insulating portion (see Fig. 1, item 20; the space shown at item 20 is a space between two electrodes, the space between electrodes forms an insulating portion between

the two electrodes) for electrically isolating the first and second electrodes from one another (the space between electrodes acts to electrically isolate the first from the second electrode); and an electrical path (see Fig. 1, item 22; column 4, lines 20-23) coupling the first electrode to a terminal on an exterior of the tube (paragraph 4, lines 20-23).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claims 2, 4, 6 and 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Byram et al. (U.S. 5,493,178; of record) in view of Delory et al. (U.S. 4,358,707; of record).

12. As to claim 2, Byram et al. discloses an electron tube (see Fig. 1; column 2, lines 66-67); including: an electrically insulating wall portion (see Fig. 1, item 12; column 3, lines 64-66); a multistage collector (see Fig. 1, item 10; column 3, lines 61-63) including: a first electrode (see Fig. 1, item 16; column 4, lines 12-13) adapted to collect electrons (column 1, lines 26-29 and column 1, lines 47-50; collector electrodes are by definition electrodes in an electron tube that collects electrons that have finished carrying current) of a first energy level impacting the first electrode (column 1, lines 47-50) the first electrode formed on an inside portion of the insulating wall portion (see Fig. 1, item 12; column 4, lines 5-8) and including a metallization layer formed on the inside portion of the insulating wall portion (column 5, lines 1-4); a second electrode (see

Fig. 1, item 28; column 4, line 34-35) adapted to collect electrons (column 1, lines 26-29 and column 1, lines 47-50; collector electrodes are by definition electrodes in an electron tube that collects electrons that have finished carrying current) of a second energy level impacting the second electrode (column 1, lines 47-50); and an insulating portion (see Fig. 1, item 20; the space shown at item 20 is a space between two electrodes, the space between electrodes forms an insulating portion between the two electrodes) for electrically isolating the first and second electrodes from one another (the space between electrodes acts to electrically isolate the first from the second electrode); and an electrical path (see Fig. 1, item 22; column 4, lines 20-23) coupling the first electrode to a terminal on an exterior of the tube (paragraph 4, lines 20-23). Byram et al. fail to disclose a cylindrical copper member including a plurality of circular disposed fingers and slots, the fingers affixed at a distal end thereof to the metallization layer.

In the same field of endeavor, Delory et al. discloses an electron tube (column 1, lines 7-8) with an insulating wall portion (see Fig. 1, item 5; column 1, lines 7-68 and column 2, lines 1-2). Delory et al. further discloses a cylindrical copper member (see Fig. 1, item 1; column 1, lines 58-60; also see Fig. 2 for the cylindrical shape) including a plurality of circular disposed fingers and slots (see Fig. 2, items 30 and 31; column 2, lines 6-16), the fingers affixed at a distal end thereof to the metallization layer (see Fig. 2, items 30 and 31; they are on the exterior of the copper member, which the examiner interprets as distal). Delory et al. further discloses that this arrangement allows for more efficient brazing of the copper tube to the insulating wall (column 1, lines 20-30).

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the electron tube of Byram et al. to include a plurality of

circular disposed fingers and slots, the fingers affixed at a distal end thereof to the metallization layer, as taught by Delory et al., to more efficiently braze the copper tube to the insulating wall.

13. As to claim 4, Byram et al. and Delory et al. disclose an electron tube in accordance with claim 2. Byram et al. further disclose that the electrically insulating wall portion comprises a ceramic material (column 3, lines 64-66).

14. As to claim 6, Byram et al. and Delory et al. disclose an electron tube in accordance with claim 4. Byram et al. further discloses that the tube further comprises a fluid cooling apparatus (see Figs. 1 and 2, item 45; column 5, lines 17-28) in thermal contact with an exterior of the tube (column 5, lines 25-28).

15. As to claims 11-13, Byram et al. discloses an electron tube in accordance with claim 9. Byram et al. fail to disclose a cylindrical copper member including a plurality of circular disposed fingers and slots, the fingers affixed at a distal end thereof to the metallization layer.

In the same field of endeavor, Delory et al. discloses an electron tube (column 1, lines 7-8) with an insulating wall portion (see Fig. 1, item 5; column 1, lines 7-68 and column 2, lines 1-2). Delory et al. further discloses a cylindrical copper member (see Fig. 1, item 1; column 1, lines 58-60; also see Fig. 2 for the cylindrical shape) including a plurality of circular disposed fingers and slots (see Fig. 2, items 30 and 31; column 2, lines 6-16), the fingers affixed at a distal end thereof to the metallization layer (see Fig. 2, items 30 and 31; they are on the exterior of the copper member, which the examiner interprets as distal). Delory et al. further discloses that this arrangement allows for more efficient brazing of the copper tube to the insulating wall (column 1, lines 20-30).

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the electron tube of Byram et al. to include a plurality of circular disposed fingers and slots, the fingers affixed at a distal end thereof to the metallization layer, as taught by Delory et al., to more efficiently braze the copper tube to the insulating wall.

16. As to claim 14, Byram et al. and Delory et al. disclose an electron tube in accordance with claim 12. Byram et al. further disclose that the vacuum envelope means comprises a ceramic material (column 3, lines 64-66).

17. As to claim 15, Byram et al. and Delory et al. disclose an electron tube in accordance with claim 13. Byram et al. further disclose that the vacuum envelope means comprises a ceramic material (column 3, lines 64-66).

Response to Arguments

18. The examiner acknowledges the amendment to claim 9.

19. Regarding the applicant's argument that Byram does not disclose a layer of metallization on the inner surface of the insulating wall portion, the examiner respectfully disagrees. Byram specifically states in lines 1-4 of column 5 that "the inner surface 20 can be metallized." Claims 1 and 2 recite, "a metallization layer formed on said inside portion of the insulating wall portion." This is precisely what Byram discloses. Claim 9 states that the first means for conducting electricity includes a layer of metallization configured to collect electrons, the examiner notes that the electrode (see Fig. 1, item 16) is attached to the inner surface of the insulating wall portion (see Fig. 1, item 20) with a layer of metallization (column 5, lines 1-4).

Therefore, since the metallization layer has an electrode attached thereto, the metallization layer is adapted to collect electrons.

Final Rejection

20. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony J. Canning whose telephone number is (571)-272-2486. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh D. Patel can be reached on (571)-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Anthony Canning
17 March 2007

Sikha Roy

SIKHA ROY
PRIMARY PATENT EXAMINER